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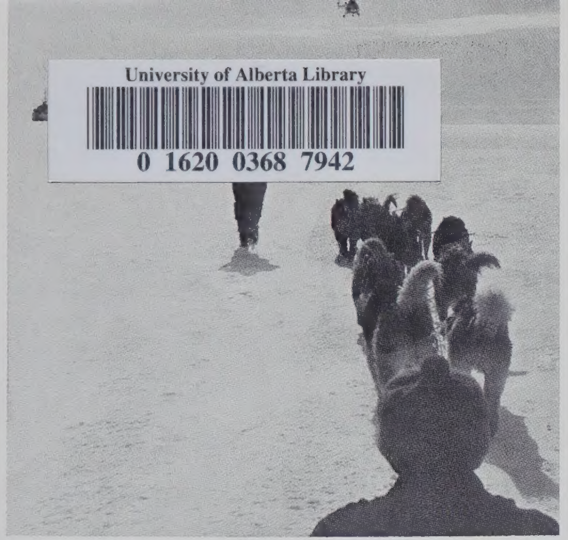

FUTURE

In spite of the tremendous effort made during the past decade, Antarctica remains the least-known continent. But the future of Antarctic research is strongly linked to the future of science itself. Therefore, New Zealand plans to continue the observatory type geophysical programmes, modifying them according to discoveries and development. Such programmes will require the short-term establishment of small stations similar to the one recently built at Vanda and should be capable of being rapidly erected, dismantled, and re-erected wherever research interest demands. Research organisations are also investigating the feasibility of automated unmanned geophysical observatories for operation in Antarctica. The rapid advance in technology places this type of instrumentation within our grasp, and within the next year or two automated stations may replace the smaller manned stations of today.

The question is often asked whether there is anything of commercial value in Antarctica. As far as is known, there is very little on the continent itself, but the surrounding seas are abundant with life and offer considerable possibilities as a source of food. Non-scientific uses like bases for international flights, tourism, a playground for mountaineers, and a natural refrigerator to store vast quantities of surplus food can also be envisaged. Such ideas are not really realistic if one takes into consideration the difficulties of transportation, living, and working in Antarctica.

Undoubtedly, scientific data will remain the chief export and scientists will constitute the bulk of inhabitants of Antarctica for some time. But even the collection of scientific data in Antarctica is not devoid of practical interest, for anything that expands man's understanding of the world may ultimately improve our life. This and the international goodwill resulting from scientific co-operation arising through the Antarctic Treaty make New Zealand's activities in Antarctica very worth while indeed.

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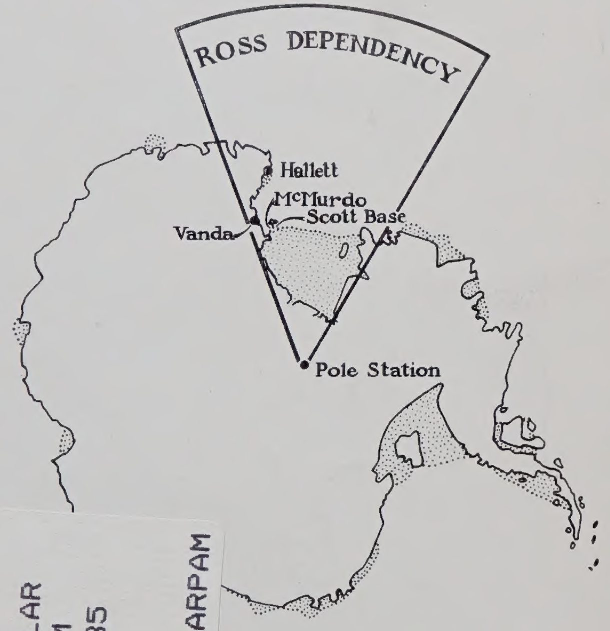
NEW ZEALAND'S
ACTIVITIES IN
ANTARCTICA



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Aerial View of Scott Base

AN INTRODUCTION TO THE OPERATIONS AND SCIENTIFIC RESEARCH BEING UNDERTAKEN BY NEW ZEALAND IN THE ROSS DEPENDENCY, ANTARCTICA

INTRODUCTION

New Zealand's activities in the Antarctic are concentrated in the Ross Dependency, the sector of Antarctica which comprises that portion of the Antarctic continent and adjacent islands between the 160th degree of east longitude and the 150th degree of west longitude which are situated south of the 60th degree of south latitude. The Ross Dependency has been administered by New Zealand since 1923.

The responsibility for the execution and operation of Antarctic scientific activities lies with the Antarctic Division of the Department of Scientific and Industrial Research. The division was formed in 1959 when the New Zealand Government decided, following the success of the International Geophysical Year, to continue the research programme.

Scott Base, which has been occupied continuously since 1957, is the centre of New Zealand's activities in Antarctica. From 1957 to 1964 New Zealand shared with the United States the scientific work at Hallett Station, 72° 18′ S: 170° 18′ E, but a fire destroyed the science building in 1964 and the programme was terminated. Parties of biologists occupied a hut at Cape Royds during the summer of 1963 to 1966, but since then this biological programme has operated from a hut at Cape Bird. In January 1969, New Zealand's second wintering-over Antarctic Base, Vanda Station, was opened.

During summer, 70–80 people work with the New Zealand programme in Antarctica. Many of these make up the field parties, each usually comprised of four or six men—geologists, geochemists, geophysicists, glaciologists, or surveyors. In winter, only a relatively few people remain—the scientists and technicians who undertake the research programmes and the base personnel to support them—an average total of 12 at Scott Base and 5 at Vanda.

The research undertaken by New Zealand has followed the lines recommended by the Scientific Committee of Antarctic Research (SCAR) and most of the data for distribution through this international organisation has been obtained from Scott Base which occupies a strategic position in the world-wide network of geophysical observing stations. The work of our scientists is also subject to modification in the interest of research commitments and the advancement of knowledge within New Zealand. Biological and geological programmes entail less international responsibility although they still have international importance, for they relate directly to Antarctica. Investigations into the little-known history of this great continent and the interesting studies of the varying forms of life in it are milestones in man's quest for knowledge.

SCOTT BASE

Lat. 77° 50′S, Long. 166° 44′E

Scott Base was erected in January 1957, on Pram Point, a low rocky projection on the western side of the Hut Point Peninsula, Ross Island. The base now consists of nine carefully designed and solidly constructed huts, linked by a covered way. Auxillary buildings include two magnetic huts, two seismology huts, an auroral tower, and a hanger.

The base was first occupied in 1957–58 by the New Zealand component of the Trans-Antarctic Expedition and a party of five IGY scientists. The winter population since 1959 has averaged 13.

The well-equipped laboratory provides the facilities required for undertaking the following continuous programmes: seismology, geomagnetism, ionospheric physics, auroral and air-glow, VLF, radio propagation, satellite tracking, and meteorology.

The large increase in staff, coupled with a big influx of visitors during the summer months, makes Scott Base a very busy place. The post office is the most southerly official post office in the world to provide all postal and communication facilities.

VANDA STATION

Lat. 77° 31′S, Long. 161° 40′E

North of the Taylor and Ferrar Glaciers of Victoria Land, west of McMurdo Sound from Scott Base, lies an area of some 2,000 square miles of relatively ice-free land which has become one of Antarctica's most intriguing puzzles.

Recently, in this dry-valley region, New Zealand established a small scientific station, near Lake Vanda in the Wright Valley. Lake Vanda is 5 miles long, 1 mile wide, and occupies the lowest part of the 35-mile-long valley. The lake has no outflow and is supplied from the east with melt water from the Wilson Piedmont Glacier via the 18-mile-long Onyx River. This river under present climatic conditions flows only during the mid-summer months. The lake is 218 ft deep where the temperature records a warm 25°c, and there are old lake levels suggesting a depth of 370 ft at some time in the past.

A five-man wintering-over party commenced continuing scientific studies in January 1969, in an endeavour to elucidate the climatic mysteries of this area and also undertake research in geophysical sciences in co-ordination with the programmes at Scott Base.

TRANSPORTATION

Close co-operation with the United States has been the key to success for transportation between New Zealand and Antarctica and air transport within Antarctica. Our supply ship, HMNZS *Endeavour* carries fuel for United States and New Zealand and RNZAF contribute a number of flights annually to swell the transport pool to Antarctica. New Zealand provides a number of facilities and services for the United States operations and in return the Americans undertake all our air (mostly helicopter) support requirements within Antarctica.

Surface transport in Antarctica varies considerably—ranging from the light man-hauled sledges to heavy tracked vehicles. No vehicle has been able to cope with all transport requirements nor fully overcome the variety of difficult terrain. Although New Zealand still maintains some dogs, their use in recent years has decreased considerably. The motor toboggan (or tin dog) has found more favour with field parties.

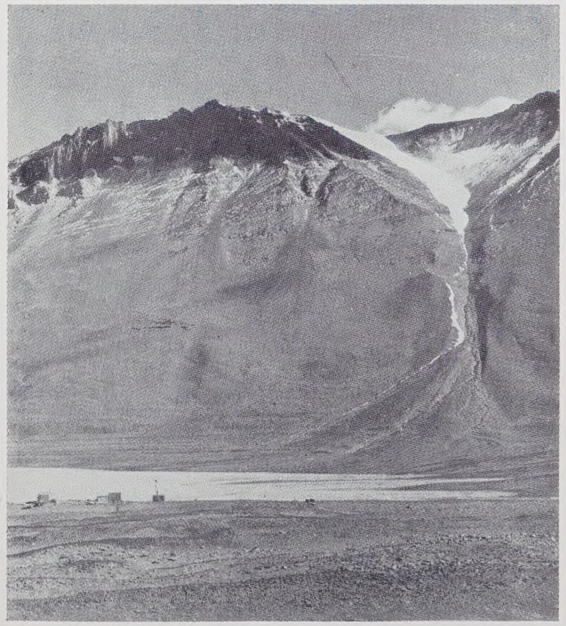
FIELD WORK

New Zealand survey parties have almost completed the mapping of the Ross Dependency, a mountainous area comprising some 175,000 square miles plus an area of approximately 130,000 square miles of permanent ice shelf. Geological parties have completed a reconnaissance of this area and work is now directed to specialised investigations of interesting geological anomalies located during the earlier reconnaissance. Interest has rapidly developed in other specialised disciplines: geochemistry, paleontology, glaciology, nuclear physics, and many fields of earth sciences.

ANTARCTIC TREATY

This international treaty is unique in that all its many important provisions have been fully observed. They allow for peaceful activities only by prohibiting military activity, promote co-operation in scientific investigations and free exchange of information, and impose strict regulations to conserve the flora and fauna of all territories south of latitude 60°. New Zealand, as one of the 12 original countries signatory to the Antarctic Treaty, is very mindful of her responsibilities and takes a very active part in co-operating with other countries in fostering the aims of the Treaty.

Field Camp



Vanda Station, Wright Valley

RNZAF Hercules